



New Program/Major or Minor/Concentration Proposal Form

(2017)

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| <p>1.0 Degree Title Please specify the two degrees for concurrent degree programs</p> <input type="text" value="M.Eng."/> | <p>2.0 Administering Faculty/Unit</p> <input type="text" value="Graduate and Postdoctoral Studies"/> |
| <p>1.1 Major (Legacy= Subject)(30-char. max.)</p> <input type="text" value="Materials Engineering"/> | <p>Offering Faculty/Department</p> <input type="text" value="Faculty of Engineering / Mining and Materials"/> |
| <p>1.2 Concentration (Legacy = Concentration/Option) If applicable to Majors only (30 char. max.)</p> <input type="text" value="Environmental Engineering"/> | <p>3.0 Effective Term of Implementation (Ex. Sept. 2004 = 200409) Term</p> <input type="text" value="201809"/> |
| <p>1.3 Minor (with Concentration, if Applicable) (30 char. max.)</p> <input type="text"/> | |

4.0 Rationale and Admission Requirements for New Proposal

5.0 Program Information
Please **underline** your selection.

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| <p>5.1 Program Type</p> <p>Bachelor's Program</p> <p><u>Master's</u></p> <p>M.Sc. (Applied) Program</p> <p>Dual Degree/Concurrent Program</p> <p>Certificate</p> <p>Diploma</p> <p>Graduate Certificate</p> <p>Graduate Diploma</p> <p>Ph.D. Program</p> <p>Doctorate Program (Other than Ph.D.)</p> <p>Self-Funded/Private Program</p> <p>Off-Campus Program</p> <p>Distance Education Program (By Correspondence)</p> <p>Other (Please specify)</p> | <p>5.2 Category</p> <p>Faculty Program (FP)</p> <p>Major</p> <p>Joint Major</p> <p>Major Concentration (CON)</p> <p>Minor</p> <p>Minor Concentration (CON)</p> <p>Honours (HON)</p> <p>Joint Honours Component (HC)</p> <p>Internship/Co-op</p> <p>Thesis (T)</p> <p><u>Non-Thesis (N)</u></p> <p>Other</p> <p>Please specify</p> <input type="text"/> | <p>5.3 Level</p> <p>Undergraduate</p> <p>Dentistry/Law/Medicine</p> <p>Continuing Studies (Non-Credit)</p> <p>Collegial</p> <p><u>Masters & Grad Dips & Certs</u></p> <p>Doctorate</p> <p>Post-Graduate Medicine/Dentistry</p> <p>Graduate Qualifying</p> <p>Postdoctoral Fellows</p> <p>5.4 FQRSC (Research) Indicator (for GPS) Yes <u>No</u></p> <p>5.5 Requires Resources Yes <u>No</u></p> |
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| <p>6.0 Total Credits</p> <input type="text" value="45"/> | <p>7.0 Consultation with Related Units</p> <p>Yes <u>No</u></p> <p>Financial Consult Yes <u>No</u></p> <p>Attach list of consultations.</p> |
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8.0 Program Description (Maximum 150 words)

This interdepartmental graduate option leads to a Master of Engineering (M.Eng.) Materials Engineering (Non-Thesis): Environmental Engineering. The objective of the option is to train environmental professionals at an advanced level. The program is designed for individuals with an undergraduate degree in engineering. The Environmental Engineering option emphasizes interdisciplinary fundamental knowledge, practical perspectives, and awareness of environmental issues through a wide range of technical and non-technical courses offered by collaborating departments and faculties at the University. Students are strongly encouraged to consult with the Graduate Program Director prior to enrolling in the program.

9.0 List of proposed program for the New Program/Major or Minor/Concentration.

If new concentration (option) of existing Major/Minor (program), please attach a program layout (list of all courses) of existing Major/Minor.

Proposed program (list courses as follows: Subj Code/Crse Num, Title, Credit weight under the headings of: Required Courses, Complementary Courses, Elective Courses)

M.Eng. in Materials Engineering (Non-Thesis) – Environmental Engineering
(45 credits)

Research Project (6 credits)

MIME 680 Materials Engineering Project 1 (6)

Required Courses (6 credits)

CHEE 591 Environmental Bioremediation (3)

CIVE 615 Environmental Engineering Seminar (3)

Complementary Courses (22 credits)

(minimum 22 credits)

Data Analysis

3 credits from the following:

AEMA 611 Experimental Designs 1 (3)

CIVE 555 Environmental Data Analysis (3)

PSYC 650 Advanced Statistics 1 (3)

Toxicology

3 credits from the following:

OCCH 612 Principles of Toxicology (3)

OCCH 616 Occupational Hygiene (3)

Water Pollution Engineering

4 credits from the following:

CIVE 651 Theory: Water / Wastewater Treatment (4)

CIVE 652 Biological Treatment: Wastewaters (4)

CIVE 660 Chemical and Physical Treatment of Waters (4)

Air Pollution Engineering

3 credits from the following:

CHEE 592 Industrial Air Pollution Control (3)

MECH 534 Air Pollution Engineering (3)

Soil and Water Quality Management

3-4 credits from the following:

BREE 533 Water Quality Management (3)

CIVE 686 Site Remediation (4)

Environmental Impact

3 credits from the following:

GEOG 501 Modelling Environmental Systems (3)

GEOG 551 Environmental Decisions (3)

or 3 credits approved at the 500-, 600-, or 700-level

9.0 List of proposed program for the New Program/Major or Minor/Concentration.

If new concentration (option) of existing Major/Minor (program), please attach a program layout (list of all courses) of existing Major/Minor.

Proposed program (list courses as follows: Subj Code/Crse Num, Title, Credit weight under the headings of: Required Courses, Complementary Courses, Elective Courses)

Environmental Policy

URBP 506 Environmental Policy and Planning (3)
or 3 credits approved at the 500-, 600-, or 700-level

Elective Courses (10-11 credits)

(minimum 10 credits)

Another project course and/or Engineering or non-Engineering 500-, 600-, or 700-level course subject to approval of the Department.

The relevant Project course in Materials Engineering is the following:

MIME 681 Materials Engineering Project 2 (6)

9.0 List of proposed program for the New Program/Major or Minor/Concentration

Existing program: Master of Engineering (M.Eng.) Mining and Materials Engineering (Non-Thesis): Environmental Engineering (45 credits)**Research Project (6 credits)**

MIME 628 Mineral Engineering Project 1 (6 credits)

Required Courses (6 credits)

CHEE 591 Environmental Bioremediation (3 credits)

CIVE 615 Environmental Engineering Seminar (3 credits)

Complementary Courses (22 credits)

(minimum 22 credits)

Data Analysis Course

One of the following courses:

AEMA 611 Experimental Designs 1 (3 credits)

CIVE 555 Environmental Data Analysis (3 credits)

PSYC 650 Advanced Statistics 1 (3 credits)

Toxicology Course

One of the following courses:

OCCH 612 Principles of Toxicology (3 credits)

OCCH 616 Occupational Hygiene (3 credits)

Water Pollution Engineering Course

One of the following courses:

CIVE 651 Theory: Water / Wastewater Treatment (4 credits)

CIVE 652 Biological Treatment: Wastewaters (4 credits)

CIVE 660 Chemical and Physical Treatment of Waters (4 credits)

Air Pollution Engineering Course

One of the following courses:

CHEE 592 Industrial Air Pollution Control (3 credits)

MECH 534 Air Pollution Engineering (3 credits)

Soil and Water Quality Management Course

One of the following courses:

BREE 533 Water Quality Management (3 credits)

CIVE 686 Site Remediation (4 credits)

Environmental Impact Course

One of the following courses:

GEOG 501 Modelling Environmental Systems (3 credits)

GEOG 551 Environmental Decisions (3 credits)

or an approved 500-, 600-, or 700-level alternative.

Environmental Policy Course

URBP 506 Environmental Policy and Planning (3 credits)

or an approved 500-, 600-, or 700-level alternative.

Elective Courses (11 credits)



(minimum 11 credits)

Another project course and/or Engineering or non-Engineering 500-, 600-, or 700-level course subject to approval of the Department.

The relevant Project course in Mining and Materials Engineering is the following:

MIME 629 Mineral Engineering Project 2 (6 credits)

10.0 Approvals

| Routing Sequence | Name | Signature | Date |
|-----------------------|-------------------|--|-------------------|
| Department | George Demopoulos |  | March 20/18 |
| Curric/Acad Committee | Laurent Mvdlarski |  | February 28. 2018 |
| Faculty 1 | Laurent Mvdlarski |  | March 13. 2018 |
| Faculty 2 | | | |
| Faculty 3 | | | |
| CGPS | | | |
| SCTP | | | |
| APC | | | |
| Senate | | | |

Submitted by

Name:

Phone:

Email:

Submission Date:

To be completed by ARR:

CIP Code

4.0 Rationale and Admission Requirement for the new proposal

Because of the recent division of the M.Eng. Mining and Materials Engineering (Non-Thesis) program into two programs (M.Eng. Mining Engineering (Non-Thesis) and M.Eng. Materials Engineering (Non-Thesis) (effective Fall 2018), we must similarly divide the Environmental Engineering option into two options under each of the M.Eng. Mining Engineering (Non-Thesis) and M.Eng. Materials Engineering (Non-Thesis) programs. The current option is being created as the Environmental Engineering option of the M.Eng. Materials Engineering (Non-Thesis). See note on page P1-5. Note that the Environmental Engineering option is offered by Bioresource Engineering, Chemical Engineering, Civil Engineering, in addition to Mining and Materials Engineering. This option (for all units) is currently under review by the Environmental Engineering Committee and revisions are expected in the future.

The admission requirements are not changing for this program (it is only being created due to the split of the graduate program into separate Mining and Materials programs). The current admission requirements for the non-thesis degree are as follows:

- Applicants should be graduates of a recognized university and hold a B.Eng., B.Sc. Applied or B.Sc. degree equivalent to the respective McGill degree. Degrees in mining/ mineral, metallurgical/materials engineering, other relevant sciences (e.g. geology, physics, chemistry, mathematics or computer science) and other engineering disciplines such as chemical, civil, mechanical or electrical engineering are eligible for admission.
- Applicants must show evidence of suitable academic achievement: a minimum standing equivalent to a Cumulative Grade Point Average (CGPA) of 3.0 out of a 4.0 for all years of the undergraduate program, or a GPA of 3.2 out of 4.0 for the last 2 full-time academic years. In special cases candidates with CGPA less than 3.0 but above 2.7 may be recommended for admission by the DGSC if they produce strong evidence of research or professional achievement and receive a strong and justified endorsement from a willing professor to supervise their studies. Such recommendation for admission may be conditional on the student completing successfully a prescribed full course load term as Qualifying or Special student.